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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,111	10/15/2001	Kazuhisa Kunitake	110497	9315

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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/976,111

Applicant(s)

KUNITAKE ET AL.

Examiner

Basia Ridley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 3-13, 15, 18-22 and 24-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 14, 16, 17 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group A, claims 1-24 and Species I, claims 1-2, 4, 14, 16-17 and 23 in Paper No. 5 is acknowledged.

The traversal is on the ground(s) that the Office has not established that inventions of Group A and B are independent or distinct as claimed because Group A recites a fuel reformer apparatus for reforming a raw fuel containing a hydrocarbon-containing compound so as to produce a hydrogen-rich fuel gas for use in a fuel cell and Group B recites a method of controlling a reformer that reforms a raw fuel containing a hydrocarbon-containing compound so as to produce a hydrogen-rich fuel gas for use in a fuel cell. This is not found persuasive. Even though both, the claimed method and the claimed apparatus use raw fuel containing a hydrocarbon-containing compound to produce hydrogen for use in a fuel cell, the apparatus as claimed is an autothermal reformer, and the process as claimed does not require steam addition, and therefore can be practiced by another materially different apparatus, such as one wherein the steam reforming reaction and the partial oxidation reaction do not occur at the same time (by a reactor which is not an autothermal reformer).

Further the applicant argues that search of claims of Group A would encompass a search for the subject matter of Group B, accordingly search and examination of the entire application would not impose a serious burden upon the examiner. This is not found persuasive because establishing that the inventions are classified in different classes and/or subclasses establishes that a serious burden exists on the examiner if restriction is not required.

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Further the applicant argues that the generic claim is not so broad and that the application contains a reasonable number of species, therefore search and examination of the entire application would not impose a serious burden upon the examiner. This is not found persuasive because there is no requirement for the examiner to establish that a serious burden exists if restriction between patentably distinct species is not required. See MPEP 808.01(a).

The restriction requirement is still deemed proper and is therefore made FINAL.

2. Claim(s) 3, 5-13, 15, 18-22 and 24-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

3. Claim(s) 4 is/are withdrawn from further consideration by the examiner pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic claim.

While the controller of the elected Species i controls the amount of oxygen supplied during the carbon removal process, as described in specification from P12/L6 to P13/L6, claim(s) 4 recite(s) controller which "controls the amount of the raw fuel supplied and the amount of the oxygen supplied during the carbon removal process". Therefore claim 4 is drawn to non-elected Species vii or viii as described in specification from P24/L8 to P28L1.

Specification

4. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material

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incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973). The applicant is reminded that there is no requirement under 35 U.S.C. 119 and/or 365 that an application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification. Such reference is only required when claim is made for domestic priority under 35 U.S.C. 120.

5. The disclosure is objected to because of the following informalities:

- while the specification refers to Fig. 2 (e.g. P4/L15 or P4/L18) the drawings do not include Fig. 2 but rather Fig. 2A;
- on P17/L12, "O/C rate" should be replaced with --O/C ratio--;
- on P22/L18, "time t11" should be replaced with --time t11--.

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "EH" in Fig. 2A. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim(s) 1-2, 14, 16-17 and 23 is/are rejected under 35 U.S.C. 102(b) as being anticipated by Van Hook et al. (USP 4,026,823).

Regarding claims 1, 14, 16 and 23, Van Hook et al. discloses a fuel reforming apparatus comprising:

- a reformer including a reforming catalyst (C1/L34-56);
- wherein a carbon removal process for removing carbon deposited on the reforming catalyst under a predetermined condition, is executed by controlling at least one of an amount of the raw fuel supplied to the reformer and an amount of the oxygen supplied to the reformer so that an O/C ratio becomes larger than an appropriate range of the O/C ratio that is to be established during a normal operation (C2/L34-47);
- wherein the carbon removal process is intermittently executed a plurality of times (C2/L34-47);
- wherein the controller executes the carbon removal process by controlling the amount of the oxygen supplied to the reformer to be larger than a predetermined amount thereof that is set for the normal operation of the reformer (C2/L34-47).

While the reference does not explicitly disclose various supply devices, such as a raw fuel supply device, a water supplying device and an oxygen supplying device, since the reference

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disclosed that raw fuel, water and oxygen are supplied to the process (C1/L34-C2/L48), the presence of said supply devices in system disclosed by Van Hook et al. is inherent.

While the reference does not explicitly disclose a controller, since it discloses that it is desired to control various operating conditions, e.g. steam to carbon ratio (C2/L49-53), the presence of controller for controlling raw material feed rates in the system disclosed by Van Hook et al. is inherent.

Instant claim(s) 1, 14, 16 and 23 structurally read(s) on the reformer of Van Hook et al.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim(s) 2 and 17 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Hook et al. (USP 4,026,823).

Regarding claims 2 and 17, while Van Hook et al. is silent with regard to the timing of the carbon removal processes, to perform said carbon removal process when the amount of the accumulated carbon exceeds a predetermined threshold value, based on a history of an operating condition of the reformer would have been an obvious choice for an ordinary artisan in order to maximize efficiency of the reformer operation by balancing the cost of additional oxygen supply with cost of inefficient production time when the reformer operates with carbon deposits. See *In re Sovish*, 769 F.2d 738, 742-43, 226 USPQ 771, 774 (Fed. Cir. 1985); and *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

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~~549 (CCPA-1969)~~ *BR*

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

12. In view of the foregoing, none of the claims are allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (703) 308-6824.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

BR
Basia Ridley
Examiner
Art Unit 1764

Jerry D. Johnson
JERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1100

BR
August 11, 2003